

BasicSimulationRunner

- +orchestrator: BasicOrchestrator
- -running_event: threadding.event
- -terminated: bool
- -fps: BasicFPS
- +is running(): bool
- +is terminated(): bool
- +resume()
- +pause()
- +terminate()
- +status(): str
- +run()

SimulationRunner

- +continue_streaming(): bool
- +stream(frame: np.array)
- +set_pad_vel(vel: np.array)
- +get_pad_vel(): np.array
- +plot_logs()

BasicGUI

- -simulation: BasicSimulation
- -terminate_btn
- -pause_btn
- -wind x
- -wind y
- -pad vel x
- -pad_vel_y
- -timer
- -on_terminate()
- -toaggle_pause_resume()
- -apply wind()
- -apply_pad_vel()
- -sync_pause_label()

GUI

- -simulation: SimulationRunner
- -camera streamer data label
- -simulation data label
- -camera label
- +update simulation data(data: str)
- +update camera streamer data(data: str)
- +update_camera_view(frame: np.array)

CameraStreamer

- -simulation
- -fps: BasicFPS
- -resolutions: dict(name<str> : [w,h])
- -option: mujoco.MjvOption
- -camera: mujoco.MjvCamera
- +status(): str
- +run()



BasicOrchestrator

- +models: dict(name<str>, BasicModel)
- +controllers: dict(name<str>, BasicController)
- -viewer: mujoco.viewer
- +get logs(): np.array
- +status(): str
- +set pad vel(vel: np.array)
- +get pad vel(): np.array
- +step scene()
- -update logs()

Follow

 \Diamond

- -predictor: BasicPredictor
- -update viewer camera()
- -drone above pad(): bool
- -can land(): bool
- -step predictor()
- -step pad()
- -step drone()
- -step viewer()
- +stream(frame: np.array)
- -init scene()
- +scene ended(): bool

BasicController

-plant: BasicModel

- +step()
- +status(): str

QuadrotorController

- -pids: dict
- -ff: dict
- -reference: tuple(np.array)
- -turned off: bool +descend: bool
- -descend phases: dict
- +set reference(pos, vel)
- +get reference(): tuple(np.array)
- -outer loop(): int
- -inner loop(): list(int)
- -apply_cmd(t, r, p, y)
- -get phase(): list(str, *int)
- -get phase name(): str
- -enforce descend()
- -enforce hover()
- -turn_off_plant()
- +is done()

MovingPlatformController

-velocity: np.array

BasicModel

- -xml name: str +body id: int
- +sensors: dict(name<str> : Sensor)
- +log: dict
- +get pos(): np.array
- +get vel(): np.array
- +get_true_pos(): np.array
- +get true vel(): np.array
- +status(): str
- +update_log()

Ouadrotor

- +actuator ids: list(int)
- +actuator names: list(str)
- +get height(): float
- +get orientation(): list(float)
- +get_gyro(): list(float)
- +get accelerometer(): list(float)

MovingPlatform

-joint x name: str -joint y name: str

-radius: num

+get touch force(): float



BasicPredictor

+model: Obj

+history: deque(np.array)

+prediction: np.array

+is_empty(): bool

+get_last(): np.array

+predicted(): bool

+status(): str

+predict()

ArUcoMarkerPredictor

+is_model_stable(mode: str): bool +stream_to_model(frame, curr_height)

+get_last_from_model(): np.array

BasicDetector

-model: Obj

+history: deque(np.array)

+clear history(keep: int)

+is_empty(): bool +is_full(): bool

+get_last(): np.array

+status(): str

+detect(frame: np.array, curr_height: int)

ArUcoMarkerDetector

-tol stddev: float

-px_to_meter: float

-height_trained: float

-image_size_trained: list(float)

+get_stddev(): int

+is_stable(mode: str): bool



